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ABSTRACT

One of every six children in the United States is so weak, uncoordinated, or generally inept that he or she is physically underdeveloped by the standards of the President's Council on Physical Fitness and Sports. This booklet outlines diagnostic tests that can identify physical difficulties or shortcomings in children between the ages of 9 to 17 years. Observation techniques are described, and means of improving performance and developing better physical development are discussed. (JD)

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The Physically Underdeveloped Child

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Identification

Improving Performance

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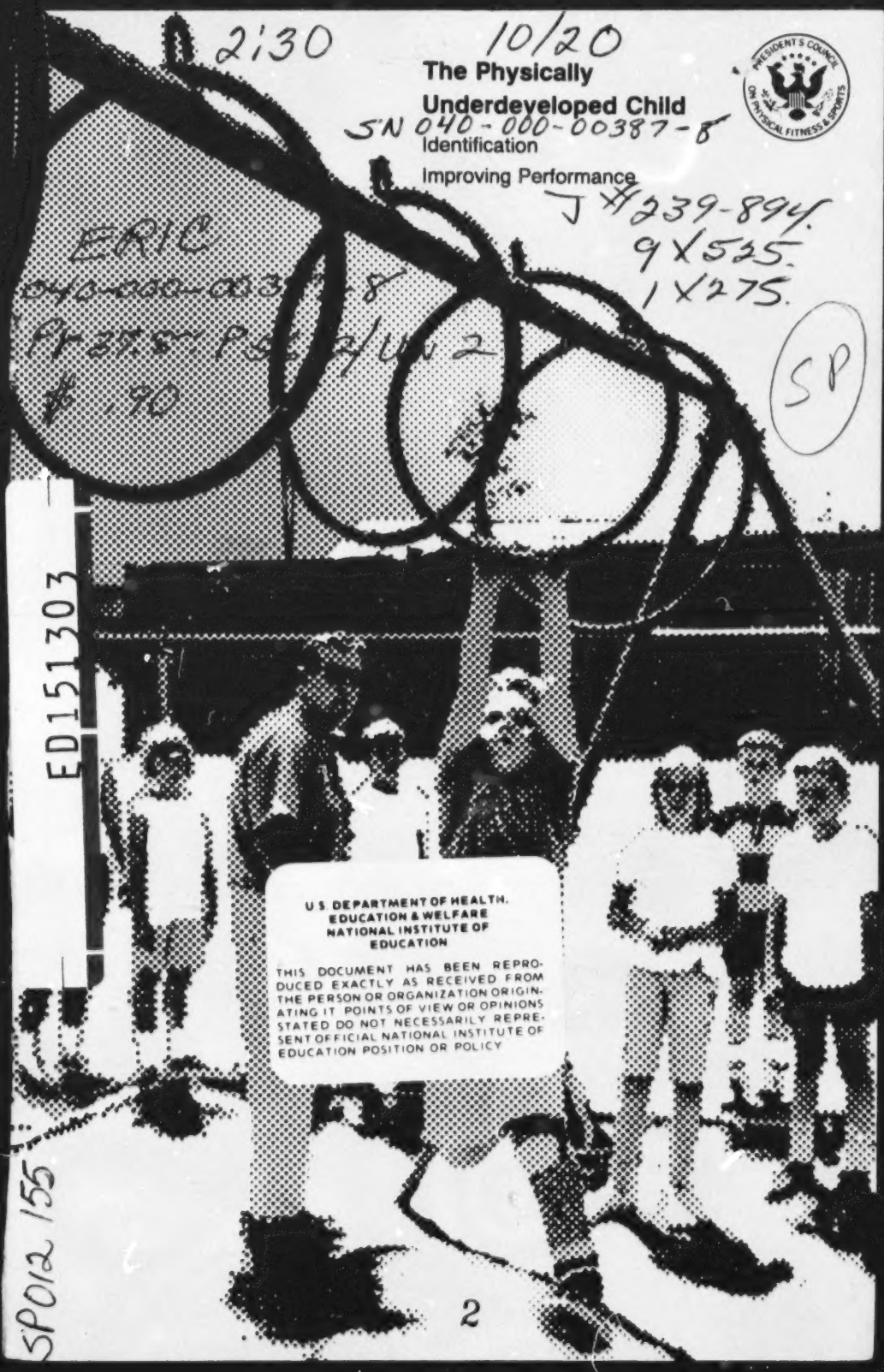

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SP012 155

1 of 6 American Children Physically Underdeveloped

One of every six children in the United States is so weak, uncoordinated, or generally inept that he or she is physically underdeveloped by the standards of the President's Council on Physical Fitness and Sports. That cold statistic barely hints at the personal trauma and social problems behind it.

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Unless the underdeveloped child is identified and helped, he or she cannot function effectively either in society at large or in the physical activities and games that are an important part of growing up. Embarrassed by repeated failure, the underdeveloped child may develop a low opinion of himself or herself, an active dislike of physical activity and sport, and an antisocial attitude. Such a child also is likely to become a sedentary, overweight adult with all of the added health risks that those conditions entail.

The personal costs of physical unfitness are painfully obvious to any adult who has ever seen a child ridiculed or rejected because of physical shortcomings. The social consequences are less apparent but equally serious. The large number of physically underdeveloped individuals in America is a major stumbling block in the way of efforts to develop a more active and healthy populace.

Identifying our physically underdeveloped children and finding remedies for their problems is, in the words of the President's advisor on physical fitness, "the most urgent task facing physical education and other youth activity programs."

Identification: The Screening Procedure

Some physically underdeveloped children are easily identified. Their ineptness is so pronounced that it cannot possibly escape notice. There are other children, however, who have problems that are more difficult to detect. That is why it is important that youth physical education, recreation, and sports programs include a formal identification procedure based on objective tests and careful observation.

The President's Council on Physical Fitness and Sports has developed a 3-item screening test that is designed to identify those young people who fall below minimum acceptable standards for strength and endurance. It is recommended that the test be given to all boys and girls, ages 9 to 17 years, at least once a year. The test measures these basic elements of fitness:

- Arm-shoulder strength and endurance (pullups for boys; flexed arm hang for girls).
- Abdominal strength and endurance (bent-knee situps).
- Circulatory-respiratory endurance and muscular endurance (Recovery Index Test).

Test instructions

Divide group into pairs for the first two test items. One child records results while the other takes the test. Results should be recorded immediately after the completion of each test item.

Older youth should be used to help administer the Recovery Index Test. Few young children can accurately locate and count a pulse, and even older boys and girls should be carefully instructed in this procedure.

The teacher or leader should oversee all test activities.

Testing

1 Pullups (Boys)

Equipment:
A sturdy bar that is comfortable to grip and high enough so that the boy's feet clear the floor when he hangs with arms and legs fully extended.

Starting Position:
Boy grasps bar with overhand grip (palms facing away from body) and hangs with arms fully extended. Feet must be clear of floor. The partner stands slightly to one side of the boy being tested and counts successful pullups.

Action:
1. Pull body up with arms until chin is above bar; 2. Lower body until arms are fully extended; 3. Repeat the exercise as many times as possible.

Rules:
One pullup is counted each time boy places chin over bar. The pullup must not be a snap movement. Knees must not be raised, kicking the legs is not permitted, and the body must not swing. If boy's body starts to swing, partner stops motion by placing extended arm across front of boy's thighs. Partner may lift boy into starting position if bar is too high to be reached easily.

To Pass:
Ages 9–12, one (1) pullup.
Ages 13–14, two (2) pullups.
Ages 15–17, four (4) pullups.

1 Flexed Arm Hang (Girls)

Equipment:
A stopwatch and a sturdy bar that is comfortable to grip. Bar should be adjustable so that it can be set at height of girl being tested.

Starting Position:
Using an overhand grip (palms facing away from body), the girl hangs with elbows flexed and chin above bar (the "pullup" position). Legs must be straight and feet clear of floor.

Action:
Hold position as long as possible.

Rules:
Partner starts timing as soon as girl is in proper position. Timing stops when (a) girl's chin touches bar; (b) girl tilts head back to keep chin above bar; or (c) girl's chin drops below bar.

To Pass:
All ages, hold position for five (5) seconds.

2 Situps (Boys and Girls)

Starting Position:
Subject lies on back with knees bent and feet on floor. Feet should be about 12 inches apart and heels about that distance from buttocks. Hands are clasped behind the neck with fingers interlaced, and elbows point outward and touch floor.

Action:
1. Sit up, bringing head and elbows forward until elbows touch knees; 2. Return to starting position, making certain that elbows touch floor; 3. Repeat exercise as many times as possible.

Rules:
One situp is counted each time subject returns to starting position.

To Pass:
Boys and girls, all ages, twenty (20) situps.

3 Recovery Index Test (Boys and Girls)
(Adapted from a statement by the American Medical Association's Committee on Exercise and Fitness)

Equipment:
A stopwatch and some solid benches or raised platforms varying in height from 14 inches (for shorter and younger children) to 20 inches (for taller and older youth).

Starting Position:
Subject stands facing bench or platform with feet slightly apart and arms at sides.

Action:
1. Place one foot (either foot) on platform; 2. Step onto platform with other foot and stand erect; 3. Step down with first foot; 4. Step down with second foot, returning to starting position.

Rules:
Count of "Up, two, three, four" is repeated every two (2) seconds for four (4) minutes. Cadence should be steady and rhythmical. To complete test successfully, subject must keep up with cadence for entire 4 minutes.

To Pass:
Boys and girls, ages 9–12, complete 4-minute exercise without undue distress.

Boys and girls, ages 13–17, complete 4-minute exercise without undue distress and score 61 (Fair) or higher on the Recovery Index Test (see instructions).

Computing the Recovery Index:

At completion of the 4-minute exercise the subject sits down and rests quietly. After one (1) minute of rest, the subject's pulse is counted for 30 seconds. The 30-second pulse count is repeated twice more, beginning two (2) minutes and three (3) minutes after completion of the exercise. The Recovery Index is arrived at by adding the three pulse counts and referring to this table:

Pulse Count	Recovery Index	Response
199 or more	60 or less	Poor
from 171 to 198	between 61 and 70	Fair
from 150 to 170	between 71 and 80	Good
from 133 to 149	between 81 and 90	Very Good
132 or less	91 or more	Excellent

Note:
Some boys and girls will not be able to complete the Recovery Index Test. This usually is simply a sign of poor physical condition, but it is wise to observe the dropouts closely. If a child shows signs of unusual distress, parents should be notified promptly. If the test is administered at school, children showing signs of unusual distress should be referred to the school nurse and/or physician.

Observing

Careful observation of children's reaction to exercise is an important part of the screening procedure. As has been stated, a poor reaction to exercise usually indicates poor physical condition rather than an acute or chronic disorder. However, it is advisable to check out all questionable cases. If a child reacts poorly to exercise, the parents should be notified. If there are health care professionals associated with the program, the child should be referred to them.

Here are the danger signals to look for:

- Breathlessness that persists long after exercise.
- Bluing of lips that is not due to cold or dampness.
- Pale, clammy skin or cold sweating during or after exercise.
- Unusual fatigue.
- Persistent shakiness after exercise.
- Muscle twitching.

There are other trouble signs that the teacher or leader cannot observe but which may be reported by boys and girls. If any of the following symptoms are recurrent after exercise, notification of parents and medical referral are recommended:

- Headache.
- Dizziness.
- Fainting.
- Broken sleep.
- Digestive upset.
- Pain not associated with injury.
- Uneven heartbeat or severe pounding of heart.
- Disorientation or personality changes.

Improving Performance: The Developmental Program

Most physically underdeveloped boys and girls can achieve at least average levels of physical fitness. Strength and endurance, in particular, can be dramatically improved by regular, vigorous exercise.

The needs of physically underdeveloped youth can best be met in a special class or group designed to deal with their problems. If there is no special class or group and it is impractical to form one, it is recommended that (a) the entire group participate for a portion of each session in activities needed by the underdeveloped, or that (b) the underdeveloped follow a separate exercise program for a portion of each session.

In addition, the teacher or leader should encourage underdeveloped boys and girls to practice appropriate skills and exercise at home. This method meets with greatest success when the importance and purpose of the activities are explained to parents.

Some school systems and recreation departments operate summer sports-fitness programs designed to help raise underdeveloped children to acceptable fitness and skill levels. The most popular format emphasizes strength and endurance conditioning, plus skills instruction in running, gymnastics, and swimming. The programs usually operate 3 hours a day, 5 days a week, for 6 weeks.

Participation in activities that develop circulatory-respiratory endurance and muscular strength and endurance will correct the deficiencies of most underdeveloped children, but it may sometimes be necessary to prescribe more specialized exercise. Children with poor coordination should be instructed in basic movement and sports skills.

For help in planning and conducting a program, the reader is referred to these President's Council publications:

a *Youth Physical Fitness; Suggestions for School Programs,* revised edition, July 1976. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price $1.50.

b *Physical Fitness Research Digest,* these issues: January 1974, "Development of Muscular Strength and Endurance"; July 1974, "Circulatory-Respiratory Endurance Improvement"; and October 1976, "Physical Fitness Practices and Programs for Elementary and Secondary Schools." Available from PCPFS.

Boys and girls who fail one or more of the screening tests should be tested again after 6 weeks. Those showing progress should continue on their programs with increased exercise dosages until they exceed the minimum test standards. Those failing to progress should be carefully checked to determine the reason. Medical or personality problems should be suspected in particularly stubborn cases.

The Failure Rate: What to Expect

Although only about one of every six American boys and girls is considered to be physically underdeveloped, at least twice that many are likely to fail one or more of the screening tests on the first attempt. This seeming discrepancy is accounted for by children with good coordination and resonable muscular development who test poorly for other reasons, such as obesity, lack of conditioning, or unfamiliarity with test items. These young people also require special attention.

Explaining the Test Results

Parents informed that their child has failed a physical fitness screening test may react in variety of ways. At one extreme they may dismiss the report as unimportant, interpreting it merely as an indication that their child is not "athletic." At the other extreme, they may become unduly alarmed, receiving the report as an indication of some irremediable defect.

The reporting procedure should be one that convinces parents of the importance of the screening test while not alarming them. A printed or mimeographed report form is recommended. It should start out with a simple statement that the child has not met the performance standards for his or her age and sex on a test prescribed by the President's Council. There should be boxes that can be checked to indicate the nature of the problem (arm-shoulder weakness, low circulatory-respiratory fitness, etc.).

If the child in question has failed a test of muscular strength or endurance, the parents should be informed that the problem usually can be corrected through appropriate exercise. If you are reporting poor circulatory-respiratory endurance or an unusually negative reaction to exercise, the parents should be advised that this problem usually indicates a lack of physical conditioning. They also should be advised to have the child see the family physician as a precaution.

Few parents are fully aware of the subtle relationships between physical fitness and personal health, performance, and appearance, or of the role that exercise plays in healthy growth and development. Fewer still are accustomed to thinking of a fitness test as an instrument for identifying problems that can seriously affect their child's future. Proper application of the test and careful interpretation of the results can help plug this serious gap in our approach to physical fitness and preventive health care.